WINZLER & KELLY
CONSULTING ENGINEERS

Ref: 90-1297-01049

July 6, 2005

Robert Stone & Mark Verhey
Humboldt County Department of Health and Human Services
Division of Environmental Health
100 H Street, Suite 100
Eureka, CA 95501

Re: Results of Additional Field Investigations, July 2005
Former Dutra Trucking Facility, 5005 Boyd Road, Arcata, California. LOP # 12264

Dear Messrs. Stone and Verhey:

Thank you for meeting with me at the former Dutra Trucking Facility in Arcata last Friday July 1, 2005, to discuss previously reported project findings and anomalous field data. From this field meeting, we identified the following task items to be performed:

- Identify the entry, course, and outfall of 36 inch storm drain pipe.
- Identify the location of dispenser islands serving the five former diesel and gasoline USTs.
- Gage monitoring wells and production well now during summer dry period.
- To provide means to sample groundwater down gradient from the former UST excavation, consider utility of installing deeper wells.
- Determine if storm drain pipe is source of water to former UST excavation and wells MW-2, MW-3, and MW-5 using borings or backhoe trench. Consider installing borings or wells upgradient of former UST excavation to determine if diesel and gasoline contamination is entering Dutra property from upslope source.
- Determine if additional source of hydrocarbons is present producing persistent and fluctuating gasoline and diesel contaminant results from groundwater samples collected within the former UST excavation (MW-3).
- Observe that river's edge has prograded with the addition of waste concrete, soil and aggregate in vicinity of former Dutra Trucking facility.

Meeting with Frank Dutra

On July 5, 2005, I met with Frank Dutra to discuss project progress. During this conversation, Mr. Dutra told me that following construction of the freeway segment of Highway 299, Caltrans installed a 36 inch diameter concrete culvert beneath Boyd Road to dispose of runoff water from

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the freeway. This culvert drained to a drainage ditch on the Dutra property. This runoff water frequently exceeded the capacity of the ditch and resulted in ponding and mud on the Dutra property. Frank Dutra contracted to have the Caltrans culvert connected to a below-grade pipe with a river outfall. Dutra used 36 inch concrete pipe to match the Caltrans material for this work.

The 36" pipe runs alongside the former UST excavation, beneath the road access to the truck fueling station at the back of the former Dutra property and on to the river outfall as we observed. The approximate route of this pipe is drawn on Figure 1. Apparently, modification of the river's edge necessitated the addition of the 36" poly pipe at the river outfall observed by Verhey. Frank Dutra believes that leaky joints in this segmented 36" drain pipe may be responsible for the water observed in former UST excavation and in MW-2, MW-3 and MW-5. This drainage from the freeway may be a source of fluctuating diesel and gasoline contamination concentrations observed in MW-2 and MW-3.

Mr. Dutra informed me that the former dispensers serving the former diesel and gasoline USTs were located atop the UST s, approximately above the centrally located gasoline UST. All product piping, dispensers, tanks and vent lines were removed at the time of UST system decommissioning in 1990.

July 5, 2005 Field Visit

On July 5, 2005, Ken Thiessen of Winzler & Kelly visited the former Dutra facility to follow-up on questions identified above. Work performed included:

1. Gage depth to water in production wells located at the north end of truck fueling facility.

Results: An electronic water gaging tool was inserted into the well head. The depth to water measured was 30.29 feet below the top of the well head at 4:12 PM. The wash down hoses that use water from this well did not appear to have been used on July 5 as the soil within the radius of the hoses was dry thus the gage depth appears to represent approximately static conditions at this well.

2. Gage depth to water in the five monitoring wells.

Results: Wells were opened and allowed to stabilize for approximately 15 minutes before water levels were measured using an electronic water gaging tool. These gage data were taken following a warm period without measurable rainfall in the past two to three weeks. As has been consistent with the trend for this site, the three wells nearest the drain pipe, MW-2, MW-3, and MW-5 produced water at depths of 14.29 feet, 12.40 feet, and 18.25 feet, respectively. The 25 foot deep wells MW-1 and MW-4 located away from the drain pipe were dry. Results are listed in the attached Table 1.

3. Expose inlet of storm drain on freeway side of Boyd Road, measure direction of pipe, collect storm water samples from pipe if available.

Results: A machete was used to cut away berry vines to allow access to the pipe inlet. No water was observed in the pipe or inlet area. The bearing of the first section of the pipe is 345°, approximately perpendicular to the direction of overlying Boyd Road. The fence line that is reportedly parallel to the Dutra-installed pipe bears 005° indicating a 20° bend in the pipe between Boyd Road and the Dutra property.

Summary

Verhey's predicted that perched groundwater would drain from the soils in the former UST excavation and from wells MW-2, MW-3, and MW-5 during a period of dry weather, provided that no additional water was introduced. As water was found in the three monitoring wells nearest the drainage pipe, it can be concluded that additional source water is being introduced into the subsurface in the vicinity of the former UST excavation and wells MW-2, MW-3, and MW-5.

The water depth measured in the production well was 30.29 feet and is likely representative of groundwater depth at most parts of the former Dutra property during dry periods. Why water should be present in MW-2, MW-3, and MW-5 at depths of 14.29 feet, 12.40 feet, and 18.25 feet, respectively remains an open question. No water was observed in the drain pipe on July 5, 2005, at the time of well gaging.

From a meeting with Frank Dutra, the route and purpose of the drain pipe is known and the location of the former fuel dispensers is known.

Recommendations

1. Investigate further the source of water to the former UST excavation and MW-2, MW-3, and MW-5. Inquire about locations of sanitary sewer, septic systems, water distribution pipes, and other possible sources of water to the subsurface.

2. Sample water in Caltrans culvert inlet at Boyd Road when surface water is available and analyze for gasoline and diesel range hydrocarbons.

3. Use borings, trenches, or wells to evaluate leakage from drainage pipe and possible upgradient contaminant sources. Design specifics for additional subsurface investigation work will be forthcoming as project requirements dictate.

4. Install deeper monitoring wells down gradient from former UST excavation. Design specifics for additional subsurface investigation work will be forthcoming as project requirements dictate.

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If you have any questions or comments, please do not hesitate to call.

Sincerely,
WINZLER & KELLY

Kenneth Thiessen, CEG #2224
Certified Engineering Geologist

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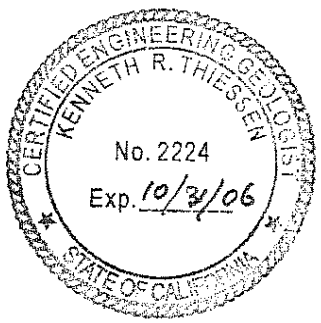

Attachments: Tables and Figures
Figure 1 Site Map
Table 1 Groundwater Level Measurements

c: Mr. Frank Dutra
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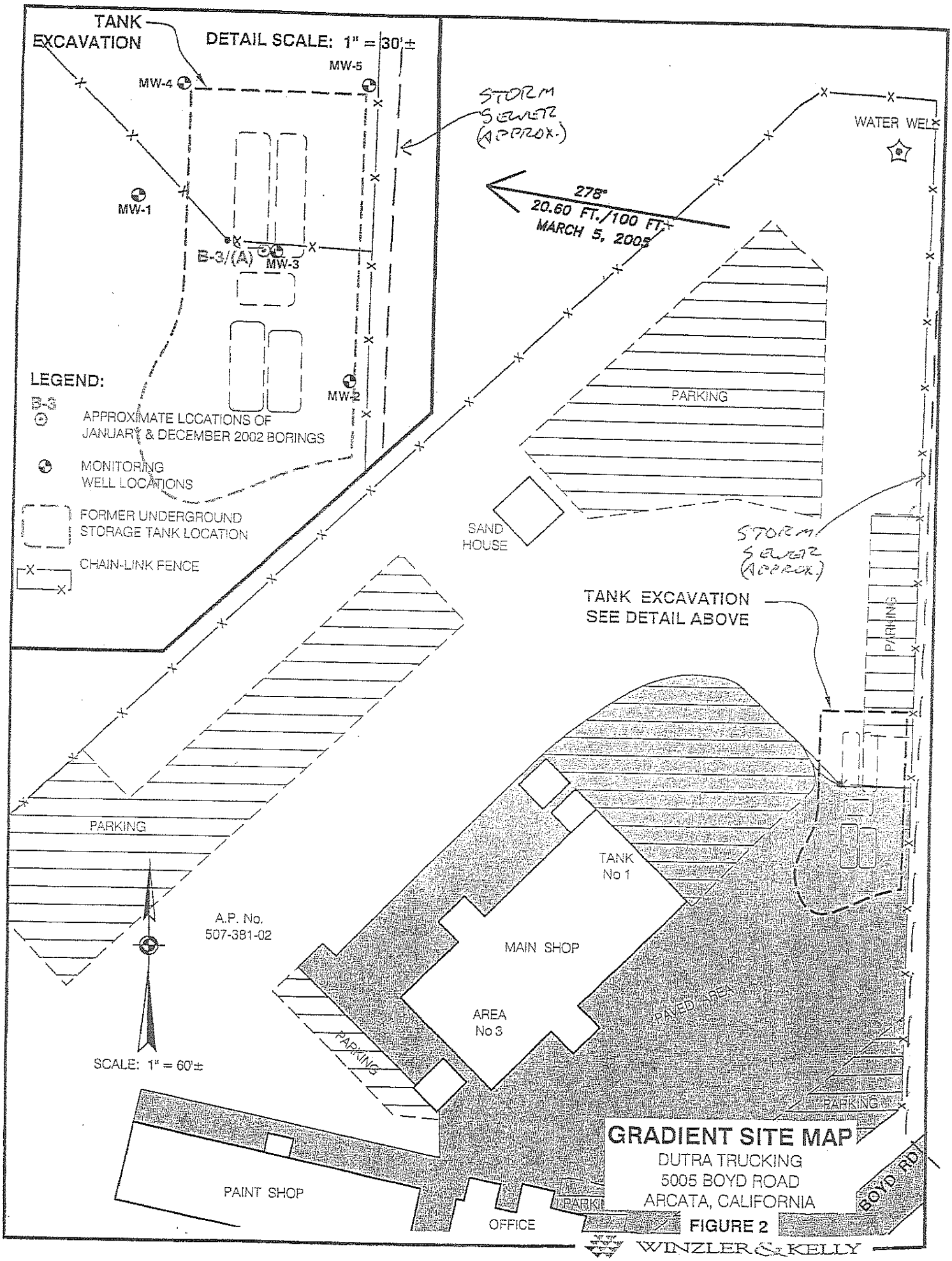
Willow Creek, California 95573



GRADIENT SITE MAP

DUTRA TRUCKING
5005 BOYD ROAD
ARCATA, CALIFORNIA

FIGURE 2

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TABLE 1
GROUNDWATER LEVEL MEASUREMENTS
Former Dutra Trucking, LOP #12264

Well Number	Date	Groundwater Elevation (ft)	Top of Casing (ft)	A Depth to Water (ft)	B Depth to Product (ft)	(A-B=C) Product Thickness (ft)	D Correction Factor (C x 0.729*)	A-D Equivalent Depth to Water (ft)
MW-1	4-Feb-04	33.48	48.03	14.55	0.00	0.00	0.00	14.55
	3-May-04	DRY	48.03	DRY	DRY	DRY	DRY	DRY
	30-Nov-04	DRY	48.03	DRY	DRY	DRY	DRY	DRY
	4-Mar-05	DRY	48.03	DRY	DRY	DRY	DRY	DRY
	5-Jul-05	DRY	48.03	DRY	DRY	DRY	DRY	DRY
MW-2	4-Feb-04	39.94	47.49	7.55	0.00	0.00	0.00	7.55
	3-May-04	34.49	47.49	13.00	0.00	0.00	0.00	13.00
	30-Nov-04	33.96	47.49	13.53	0.00	0.00	0.00	13.53
	4-Mar-05	39.83	47.49	7.66	0.00	0.00	0.00	7.66
	5-Jul-05	33.20	47.49	14.29	0.00	0.00	0.00	14.29
MW-3	4-Feb-04	37.49	47.80	10.31	0.00	0.00	0.00	10.31
	3-May-04	35.35	47.80	12.45	0.00	0.00	0.00	12.45
	30-Nov-04	33.39	47.80	14.41	0.00	0.00	0.00	14.41
	4-Mar-05	36.05	47.80	11.75	0.00	0.00	0.00	11.75
	5-Jul-05	35.40	47.80	12.40	0.00	0.00	0.00	12.40
MW-4	4-Feb-04	DRY	48.54	DRY	DRY	DRY	DRY	DRY
	3-May-04	DRY	48.54	DRY	DRY	DRY	DRY	DRY
	30-Nov-04	DRY	48.54	DRY	DRY	DRY	DRY	DRY
	4-Mar-05	DRY	48.54	DRY	DRY	DRY	DRY	DRY
	5-Jul-05	DRY	48.54	DRY	DRY	DRY	DRY	DRY
MW-5	4-Feb-04	40.06	48.62	8.56	0.00	0.00	0.00	8.56
	3-May-04	30.17	48.62	18.45	0.00	0.00	0.00	18.45
	30-Nov-04	DRY	48.62	DRY	DRY	DRY	DRY	DRY
	4-Mar-05	38.52	48.62	10.10	0.00	0.00	0.00	10.10
	5-Jul-05	30.37	48.62	18.25	0.00	0.00	0.00	18.25

*0.729 is the density of gasoline at 15oC as referenced in the API Publication 1628, Second Edition, August, 1989
NA Not applicable